

TWO CHAMBER PLACE PREFERENCE DATA COLLECTION

MED-STATE NOTATION™ PROCEDURE

SOF-700RA-25 Manual
DOC-215
Rev. 1.4

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CHAPTER 1

Getting Started

Introduction

The purpose of this manual is to give an explanation of the MED State Notation™ Procedures that comprise the SOF-700RA-25 Two Chamber Place Preference Data Collection Procedures. The files in this package can be found on the disk provided by MED Associates, Inc.

These procedures are intended to be run in MED Associates MED-PC® software. The latest version of MED-PC® gives researchers the ability to use pre-programmed procedures such as these to make hardware control and data collection easy. These pre-programmed procedures can also be modified to meet the evolving demands of a research protocol. Again, it is the intent of this manual to explain exactly what these procedures implement, and provide guidance into how to interpret what the program code achieves in order to let the user determine how to modify them to match their research protocol demands. The manual provides some examples of editing and modifying the procedure's programming code. The manual also defines the elements in the raw data file produced by these procedures.

In addition to this manual, refer to the **MED-PC® User's Manual** for the installation of the MED-Associates interface drivers, the MED-PC Software, and the Delphi® Compiler. Also refer to the User's Manual for instructions on developing a Hardware Configuration. Data file structure, file-saving format, and other related options are also determined by the Hardware Configuration. Running the Hardware Configuration software utility that accompanies MED-PC sets the Hardware Configuration. Its purpose is to assign the inputs and outputs on the interface cards in the interface cabinet for each task controlled by MED-PC. The particular type of interface card that is supplied in the interface cabinet may vary; please refer to the User's Manual provided for instructions on how to configure the type of card that is in the cabinet. A valid Hardware Configuration must exist in order for MED-PC to interface correctly with the MED Associates, Inc. hardware. This means that one should take the time to create a valid Hardware Configuration before attempting to run the procedures included in this package.

Should there be any problems, the staff at MED Associates, Inc. is available to answer any questions that may arise. Please e-mail us at support@med-associates.com with a detailed description of the problem or desired goals so that concise and detailed information may be provided.

The Two Chamber Place Preference Data Collection procedures are designed to be as easy to use as possible. MED Associates, Inc. understands that researchers do not have the time to devote to programming and hardware design, and for that reason, we have undertaken that burden for you. We sincerely hope that you are satisfied with the products and services we provide, and look forward to meeting your future experimental needs as your research program evolves.

Definitions of Data Values

The Two Chamber Place Preference Data Collection procedures generate data files that contain values for Activity, Movement, Exploration, Entrance and Zone Time.

Activity

Any beam break within the current zone.

Movement

A change in the beam broken in the current zone.

Exploration

Breaking of the first beam in a zone.

Entrance

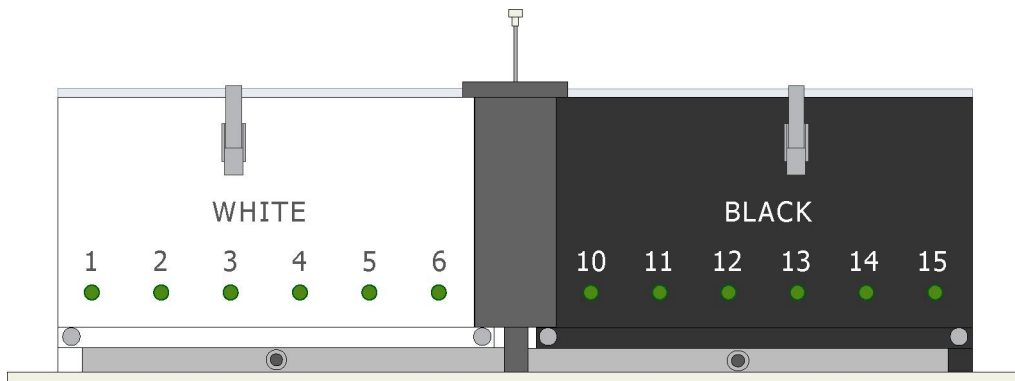
Breaking of any beam beyond the first in a zone.

Zone Time

The amount of time (in seconds) spent in the zone.

Figure 1.1 illustrates the two zones as well as the beam numbers and Table 1.1 helps to explain Entrance, Exploration and Activity. The leftmost column contains all of the beams on the Place Preference chamber. The next two columns represent the two zones in the Place Preference chamber. Wherever the animal is in the Place Preference Chamber, refer to the corresponding column.

Figure 1.1 - Place Preference Chamber Zones and Beam Numbers Labeled



For example, if the animal is in the white zone refer to the White column in Table 1.1. The table indicates that any movement within that zone (beams White1 – White6) is considered Activity. If the animal breaks the first beam in the black zone (Black10) it is counted as Exploration. If the animal breaks the second beam in the black zone (Black11) then it is considered an Entrance. Now that the animal has entered the black zone, refer to the Black column.

Table 1.1 – Reference Table

Beam	White	Black
White1	Activity	Entrance
White2	Activity	Entrance
White3	Activity	Entrance
White4	Activity	Entrance
White5	Activity	Entrance
White6	Activity	Exploration
Black10	Exploration	Activity
Black11	Entrance	Activity
Black12	Entrance	Activity
Black13	Entrance	Activity
Black14	Entrance	Activity
Black15	Entrance	Activity

Data File Arrays

The data file will have arrays B and W, which correspond to the Black and White zones. (Refer to Chapter 5, Understanding the Data Files for a sample data file). The first row of each array contains the Totals for the entire session. Each row that follows is the data for each time bin, which is defined at the beginning of the experiment in the Named Variables.

Overview of the Procedures

If the Two Chamber Place Preference Test chamber is equipped with an auto guillotine door then Two Chamber Place Pref Auto Door.mpc should be run. Both lights will be on when the procedure is loaded so that the user may make any necessary adjustment or perform testing. When the start command is issued, all lights are turned off. Following the acclimation period, the auto guillotine door is opened and the lights turned on. At the end of the session the door is closed and lights turned off.

If the Two Chamber Place Preference Test chamber is equipped with a manual guillotine door then Two Chamber Place Pref Man Door.mpc should be run. This program uses the computer's speaker to signal the end of the acclimation and test periods. The default duration for the audible alert is 5 seconds, however the duration of the audible alarm may be modified or the alarm may be turned off using the menu item "Shut Off Beep" under the Configure menu.

CHAPTER 2

Hardware

Hardware Guide

The hardware included with the Two Chamber Place Preference system will depend on whether it is equipped with an automatic or manual guillotine door, as well as the number of chambers in the system.

All Systems

Figure 2.1 - ENV-256C 16 Channel IR Controller

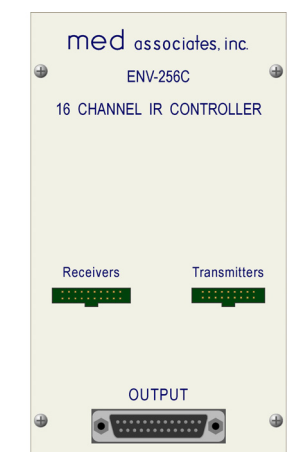


Figure 2.2 - Two Chamber Place Preference Chamber with ENV-256C

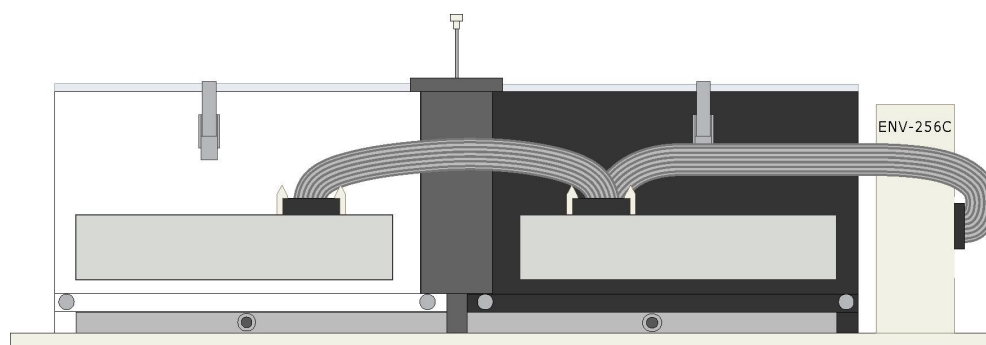


Figure 2.3 - ENV-226B Three Channel Light Controller

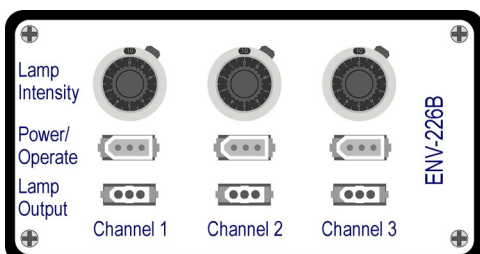
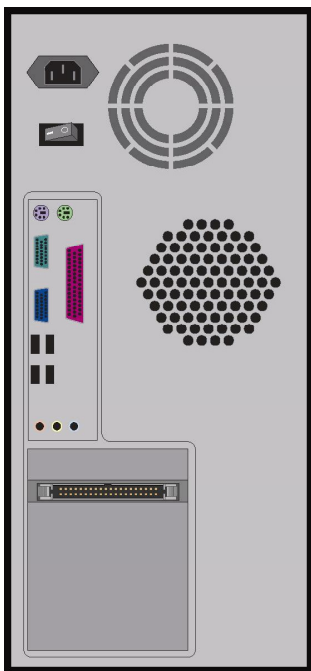


Figure 2.4 - Computer with DIG-704PCI Card



Systems with Automatic Guillotine Doors

Figure 2.5 - SG-6510D Cabinet with DIG-700F, DIG-721, DIG-709A and DIG-713A Cards

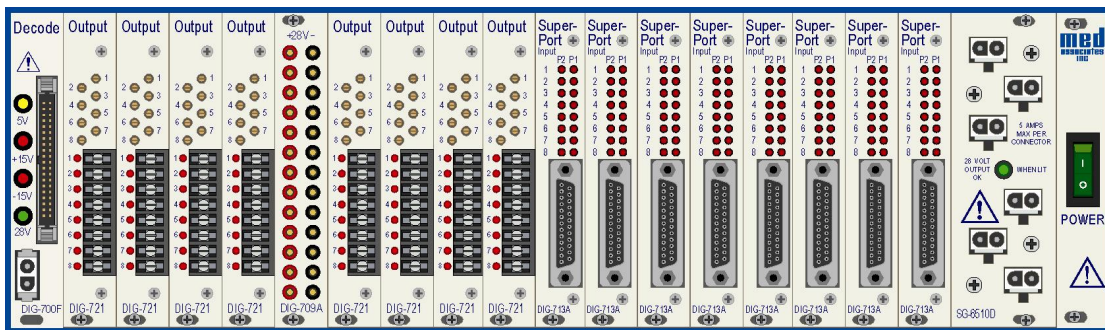
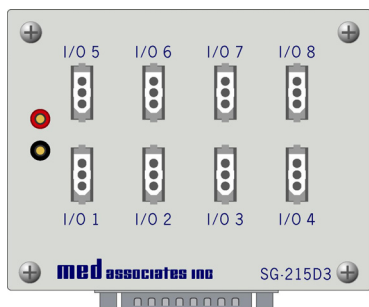
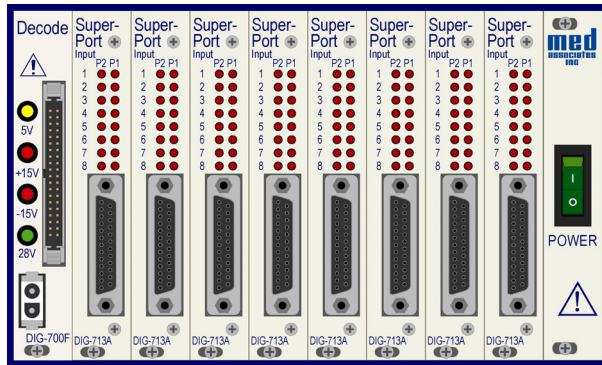


Figure 2.6 - SG-215D3 Connection Panel



Systems with Manual Guillotine Doors

Figure 2.7 - SG-6080D Cabinet with DIG-700F and DIG-713A Cards

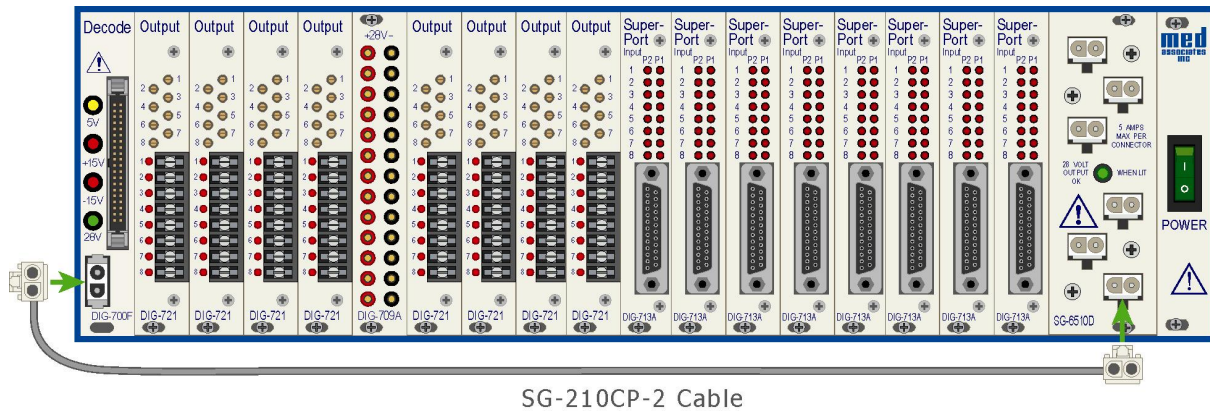


Wiring Instructions for Systems with Automatic Guillotine Doors

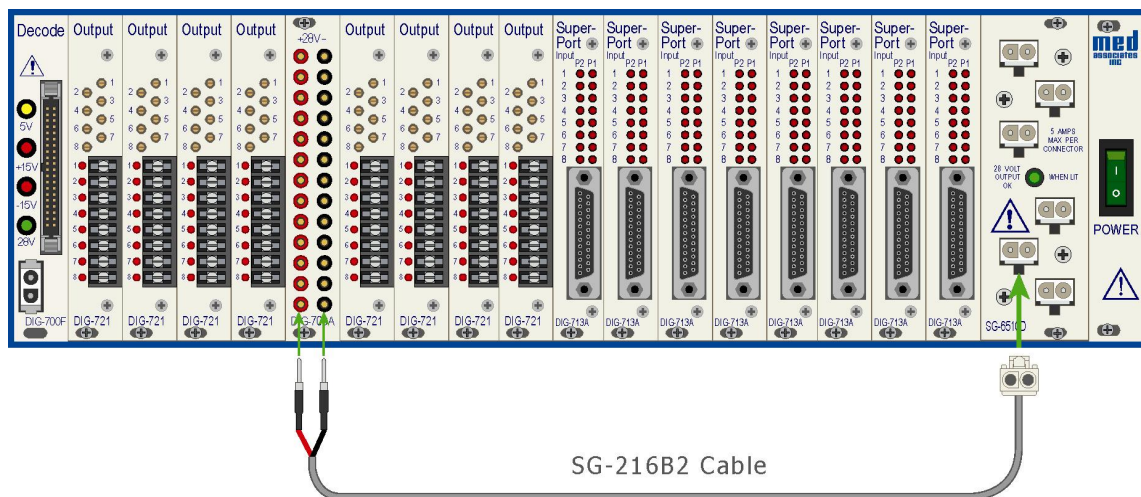
Some of the wiring for the Two Chamber Place Preference system will be completed prior to shipping. Complete the remaining wiring by following these steps:

NOTE: Be sure that all hardware is unplugged prior to completing any wiring.

- Using the SG-210CP-2 cable, connect the DIG-700F decoder card to the 28 VDC power card, as shown below.

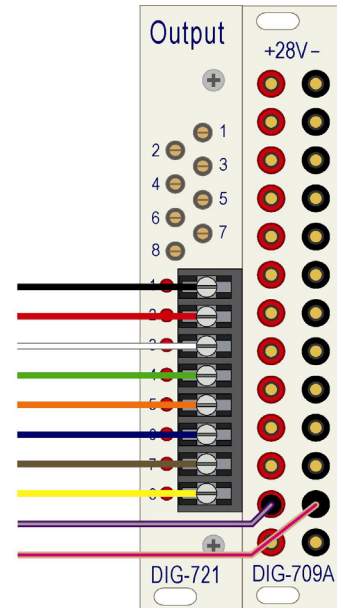


- Using the SG-216B2 cable, connect the 28 VDC power card to the DIG-709A 28 VDC power distribution card, as shown below. (Red pin to red connector and black pin to black connector).

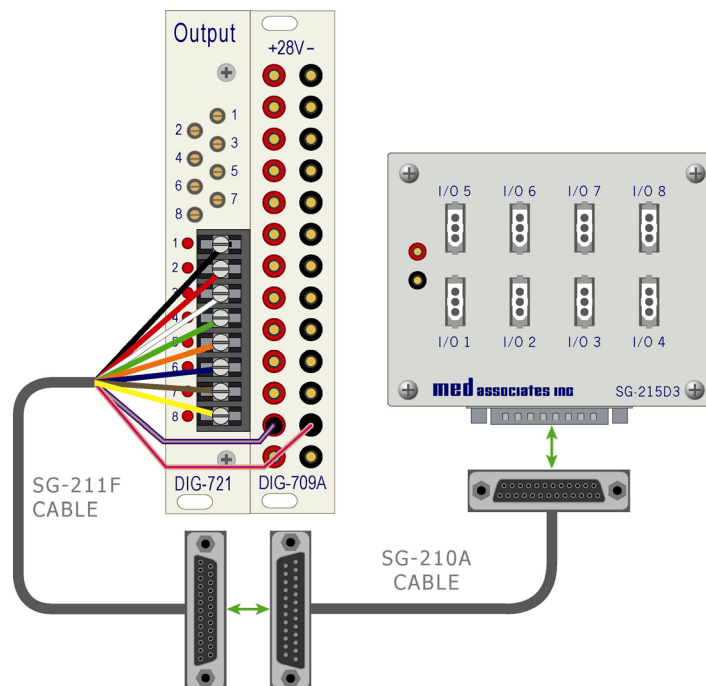


3. Each SG-211F cable terminates at one end with a female 25-pin connector. The other end terminates with eight tinned wires and two .080 pin connectors. This cable is used to control and power the automatic guillotine door. The tinned wires connect to the DIG-721 output cards and the .080 pin connectors connect to the DIG-709A 28 VDC power distribution card. The figure and table below illustrate the locations of each of these wires.

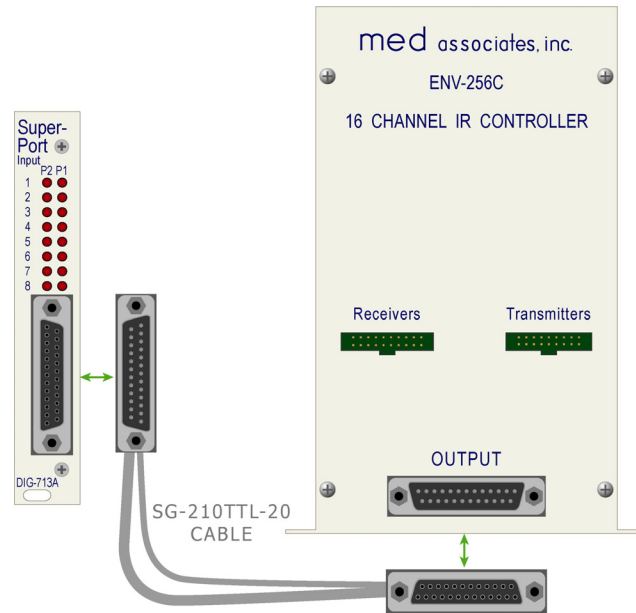
Wire Color	Card	Connector
Black	DIG-721 Output	1
Red		2
White		4
Green		8
Orange		16
Blue		32
Brown		64
Yellow		128
Gray & Purple	DIG-709A Distribution	Red
Pink & Tan		Black



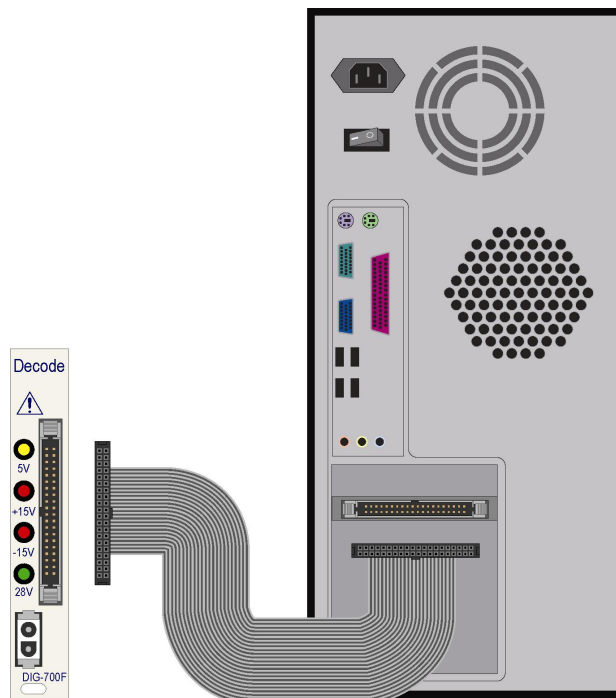
4. Connect the other end of the SG-211F cable to the male end of and SG-210A cable.
5. Connect the female end of the SG-210A cable to the SG-215D3 that corresponds to the DIG-721 card it is connected to. For example, connect the card addressed as 1 to Chamber 1.



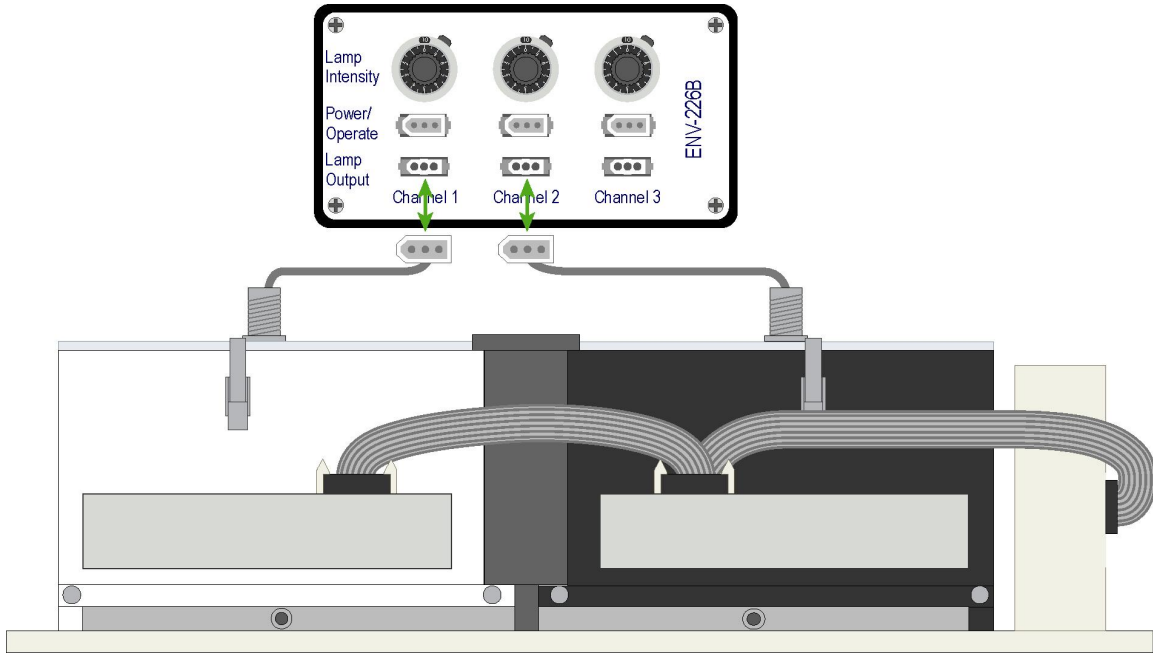
6. Repeat Steps 2 – 5 for each additional DIG-721 output card.
7. Using an SG-210TTL-20 cable, connect each DIG-713A input card to the corresponding ENV-256C IR controller. For example, connect the DIG-713A card addressed as 1 to the ENV-256C IR controller associated with Chamber 1.



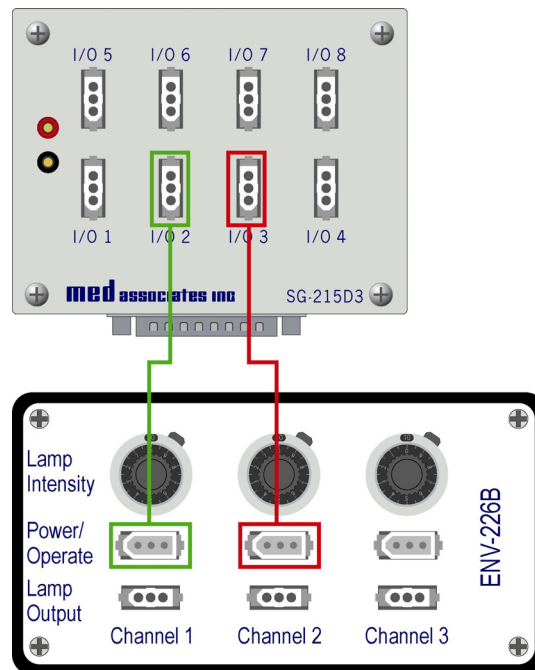
8. Using the DIG-700C ribbon cable, connect the DIG-700F decoder card to the DIG-704PCI card on the back of the computer.



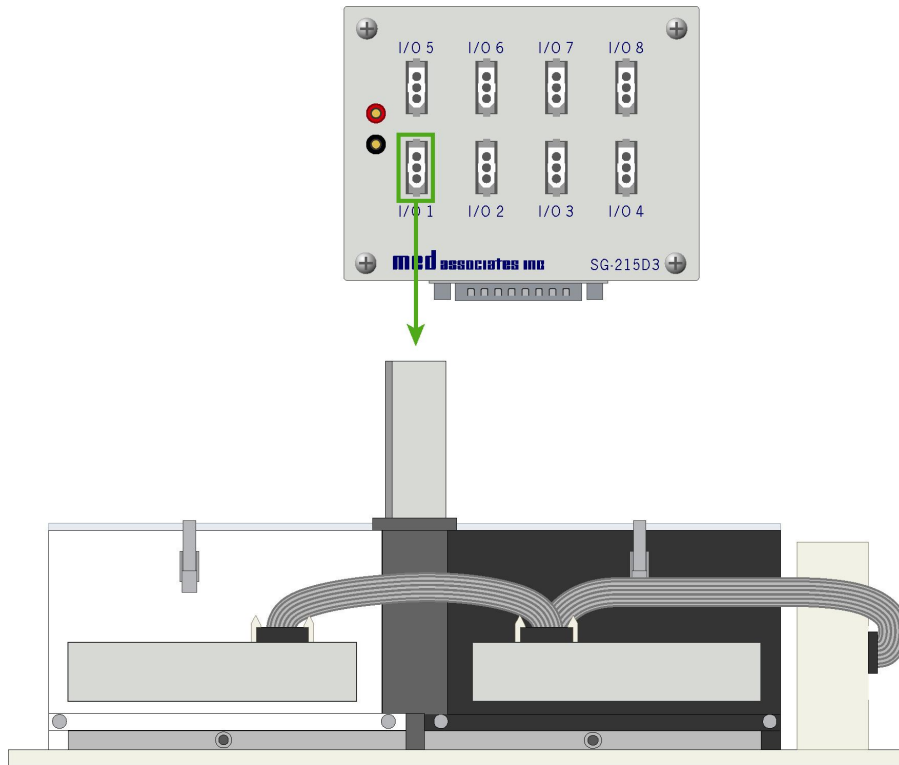
9. Connect the stimulus lights to the **Lamp Output** connectors on the ENV-226B. Connect the light in the white chamber to Channel 1 and the light in the black chamber to Channel 2, as shown below.



10. Using the included SG-216A cables, connect the **Power/Operate** connectors on the ENV-226B to the SG-215D3 I/O connectors 2 and 3, as shown below.



11. Connect the auto door to the SG-215D3 **I/O** connector 1, as shown below.



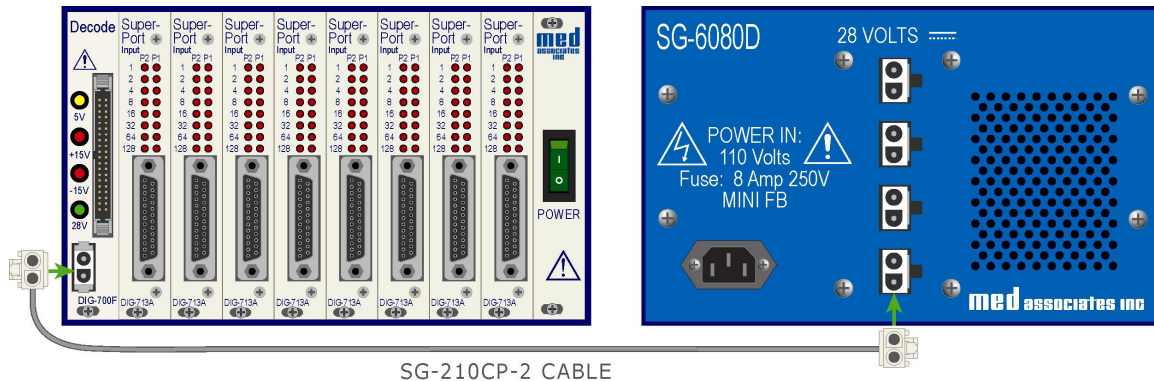
12. Apply power to the SG-6510D Interface Cabinet and the computer. The wiring for the system is now complete.

Wiring Instructions for Systems with Manual Guillotine Doors

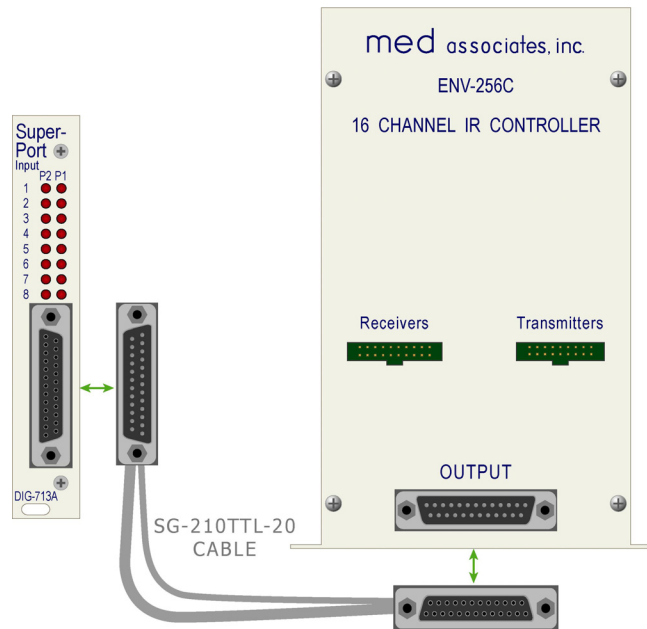
Some of the wiring for the Two Chamber Place Preference system will be completed prior to shipping. Complete the remaining wiring by following these steps:

NOTE: Be sure that all hardware is unplugged prior to completing any wiring.

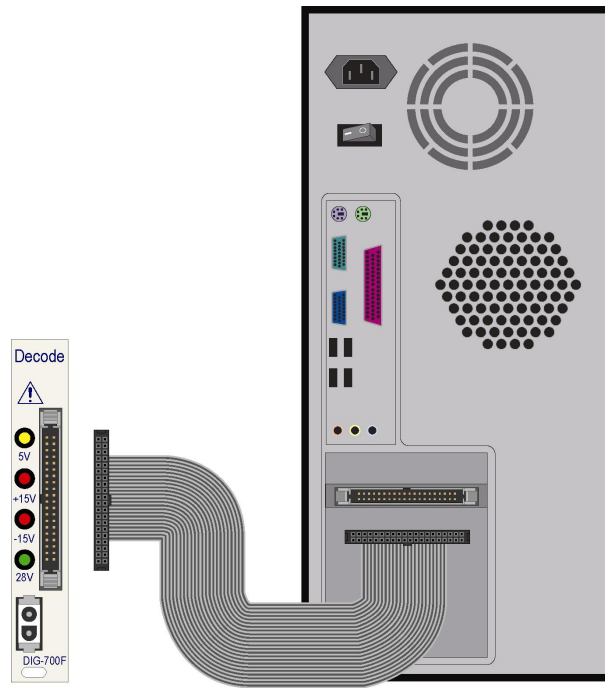
- Using the SG-210CP-2 cable, connect the DIG-700F decoder card to any 28 VDC power connector on the back of the SG-6080D cabinet, as shown below.



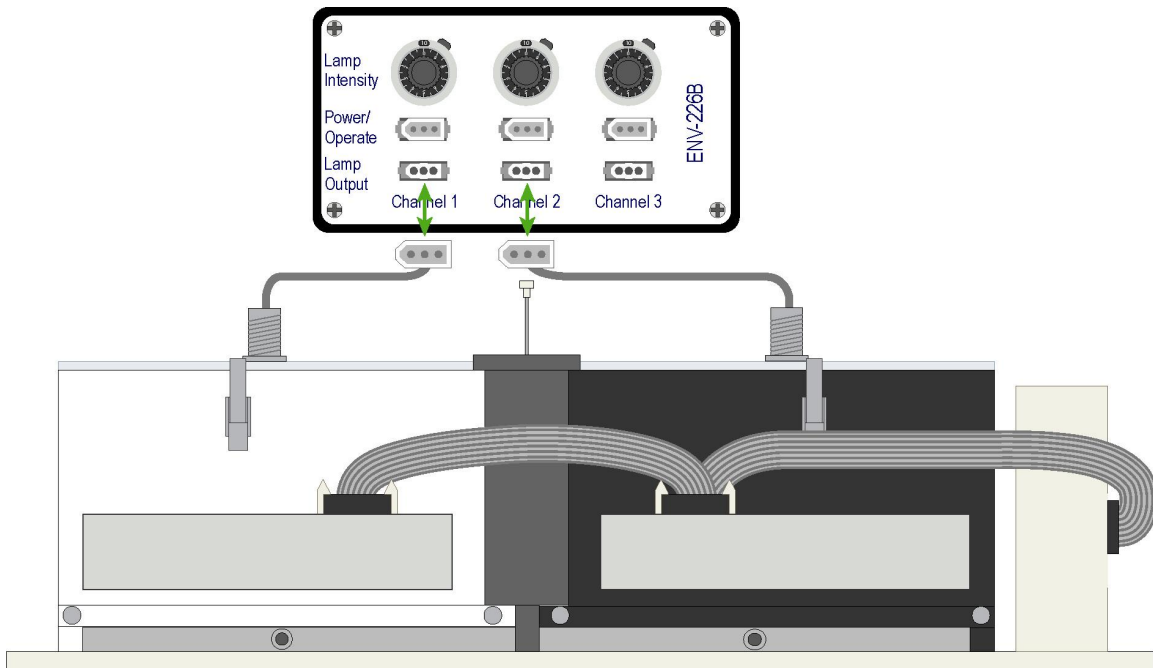
- Using an SG-210TTL-20 cable, connect each DIG-713A input card to the corresponding ENV-256C IR controller. For example, connect the DIG-713A card addressed as 1 to the ENV-256C IR controller associated with Chamber 1.



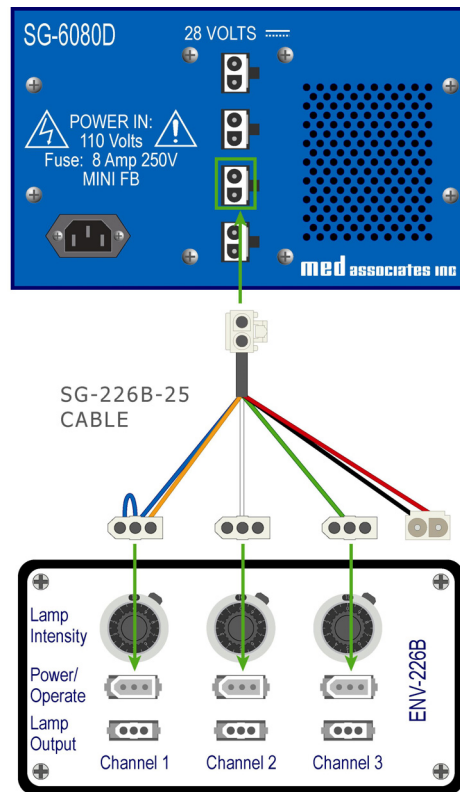
- Using the DIG-700C ribbon cable, connect the DIG-700F decoder card to the DIG-704PCI card on the back of the computer.



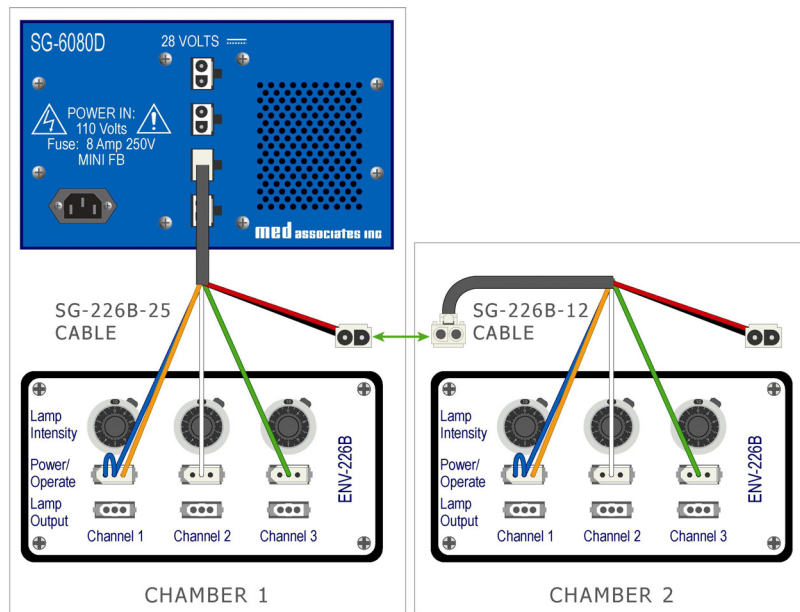
- Connect the stimulus lights to the **Lamp Output** connectors on the ENV-226B. Connect the light in the white chamber to Channel 1 and the light in the black chamber to Channel 2, as shown below. Repeat this step for each chamber.



5. Using an SG-226B-25 cable, connect the **Power/Operate** connectors on the SG-226B associated with Chamber 1 to a 28 VDC power connector on the back of the SG-6080D cabinet.



6. Daisy chain each additional ENV-226B using an SG-226B-12 cable, as shown below.



7. Apply power to the SG-6080D Interface Cabinet and the computer. The wiring for the system is now complete.

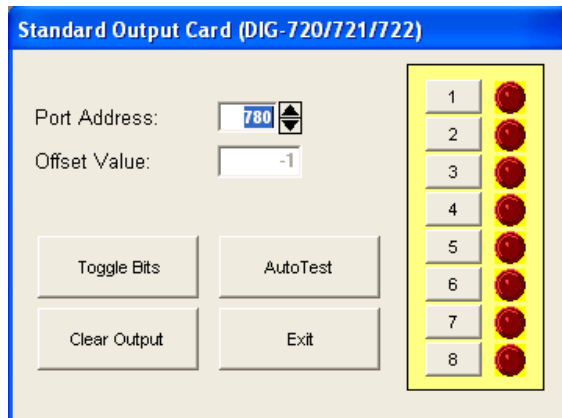
Hardware Test Procedure

Once the wiring is complete and power has been applied to the system, the hardware can be tested using the MED Test software application. If further information is necessary regarding the use of MED Test, please refer to the "MED Test User's Manual". If the system fails any portion of these tests, verify that the system is wired properly and run the test again. If the failure persists, it should be reported to MED Associates Technical Support.

Output Card / Lights / Auto Door

From the MED Test main screen, select **Standard Card | Output Card (DIG 720/721/722)**, and the screen shown below will appear.

Figure 2.8 - MED Test Standard Output Card Screen



If the system is equipped with an Automatic Guillotine Door, activating Output 1 should raise the door.

Activating Output 2 should turn on the stimulus light in the white chamber and Output 3 should turn on the stimulus light in the black chamber. When Outputs 2 and 3 are activated, adjust the **Lamp Intensity** knobs on the ENV-226B to verify that the light intensity can be adjusted.

Be sure to test each Output Card by incrementing the Port Address.

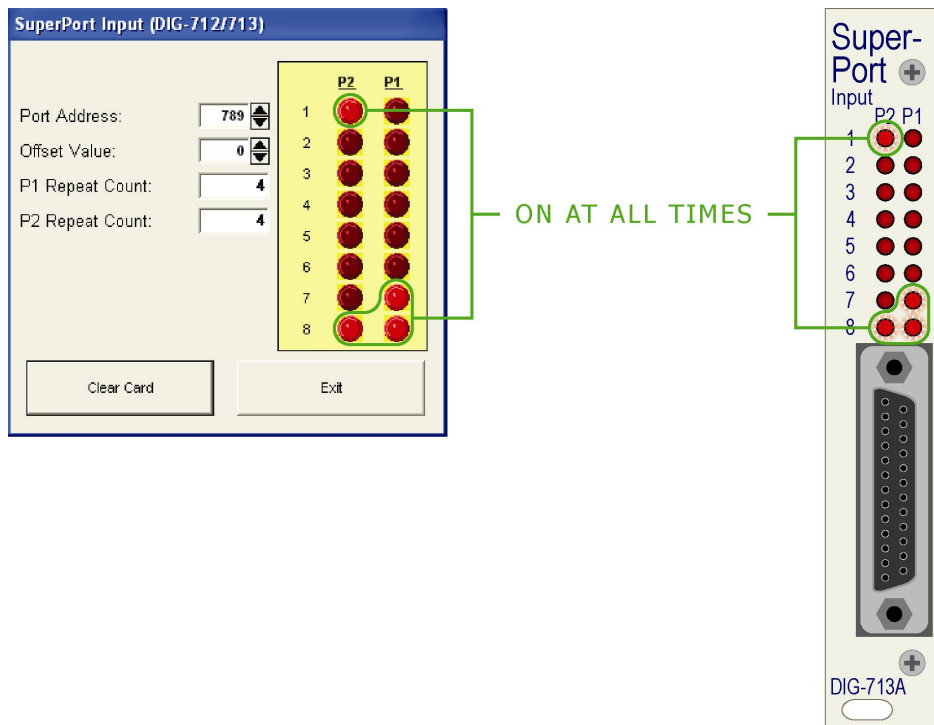
Input Card / IR Beams

From the MED Test main screen select **SuperPort | Input Card (DIG 712/713)**, and the screen shown below will appear.

Break each of the IR Beams and verify that the corresponding indicator lights up on the MED Test screen. When this is complete, click **Clear Card** and allow MED Test to run overnight. When testing is complete, there should not be any counts recorded on MED Test. Be sure to test each Input Card by incrementing the Port Address.

NOTE: The indicator lights on the MED Test screen and the LEDs on the DIG-713A card that correspond with P1 7-8, P2 1 and P2 8 will remain on at all times, as there are no IR Beams associated with these inputs.

Figure 2.9 – MED Test SuperPort Input Card Screen and DIG-713A Card



CHAPTER 3

Software

Installation

Please refer to the **MED-PC User's Manual** for a complete guide to installing the MED-PC software, building a valid Hardware configuration with the Hardware Configuration utility, and opening and compiling a MSN procedure in the Trans-IV utility.

To install the Two Chamber Place Preference Procedures, insert the CD into the CD-ROM drive and click **Install Two Chamber Place Preference**. The procedures are copied into the indicated folder.

Backing Up the Software

Med Associates strongly encourages creating backup copies of the programs in case of disk failure. Having copies of the original programs may be useful in the future should modifications be made to the existing programs.

CHAPTER 4

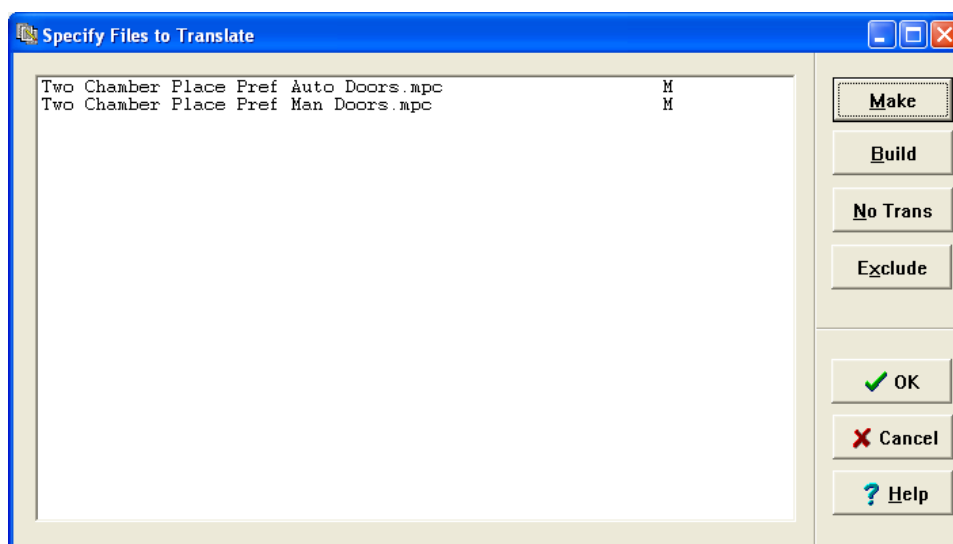
Beginning & Running an Experiment

Translating the MED-PC (.mpc) File

Programs written in MedState Notation must be translated using Trans IV before they can be executed in this application. Open Trans IV icon and select **Translation | Translate and Compile**.

Select the program(s) to use for the experiment and click **M**ake. Click **OK** to start the translator, and it will automatically parse the MedState Notation and then open to a DOS screen to compile the Pascal code. Depending on the speed of the computer, each of these steps may not be seen. If any problems are encountered during this process, refer to the on-screen help menu or the **MED-PC Version User's Manual**, or contact MED Associates, Inc. for assistance.

Figure 4.1 - Trans IV Control Panel for Translating and Compiling MedState Notation Code



Using the MED-PC Load Wizard

MED-PC is designed to help the researcher run an experiment by guiding selection choices through its Experiment Loading Wizard. This section will describe how to initiate the Two Chamber Place Pref Auto Door.mpc application, however the following steps that will also apply to all other .mpc procedures.

Open MED-PC and the MED-PC Experiment Loading Wizard's Welcome screen, shown in Figure 4.2 will appear.

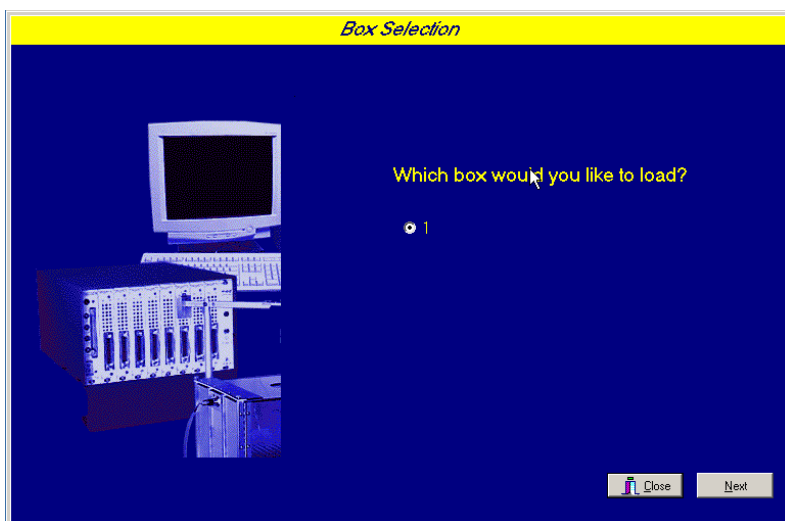
Figure 4.2 - The MED-PC Loading Wizard Welcome Screen



To avoid this load wizard, deselect the checkbox labeled **Run this experiment automatically when starting MED-PC**. Close this screen by clicking the **Close** button. Closing this screen immediately reveals the MED-PC Run-Time Screen shown in Figure 4.9. If the choice to continue with the Loading Wizard is made, then click the **Next** button.

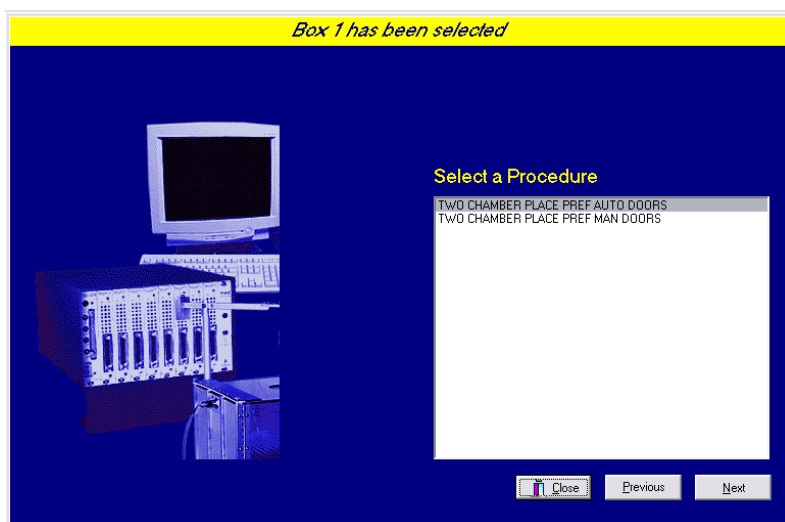
The Box Selection screen will appear next, as shown in Figure 4.3. From this screen the researcher chooses which boxes will be used in the experiment. Select the boxes that will run the experiment by clicking in the radio button next to the box number. The figure shows that the Hardware Configuration included only 1 box, which was selected. Click **Next** to continue.

Figure 4.3 - The Box Selection Screen



The Select a Procedure screen appears next, as seen in Figure 4.4. This is where the application to be run is selected. The screen displays a list of all the currently compiled procedures. Select the desired procedure and then click **Next**.

Figure 4.4 - The Select a Procedure Screen



The Enter Experiment Data Screen should display next, as shown in Figure 4.5. The purpose of this screen is to allow annotations to be added to the data file that is produced by MED-PC. These annotations will help identify the Subject, Experiment, and Experiment Group upon which data was collected. Comments can be added here as well, and the data file can be given a customized file name to help identify it from other data files. Enter the information desired, and click **Next**.

Figure 4.5 - Enter Experiment Data Screen

Box 1 and TWO CHAMBER PLACE PREF AUTO DOORS have been selected

Subject: Subject_1

Experiment: Experiment_1

Group: Group_1

Comments: Two Chamber PP Experiment

Optional Custom Filename: Two Chamber PP Subj1_Group1

Close Previous Next

The next screen to appear is the Review Choices screen, as seen in Figure 4.6. This is a method of confirming that the information received from the Box/Procedure Selected is correct. If it is not correct, select **Previous**, and edit the data. If it is correct, select **Next**.

Figure 4.6 - Review Choices Screen

Review Choices

Review the data below.

Box: 1

Procedure: TWO CHAMBER PLACE PREF AUTO DOOR:

Subject: Subject_1

Experiment: Experiment_1

Group: Group_1

Comment: Two Chamber PP Experiment

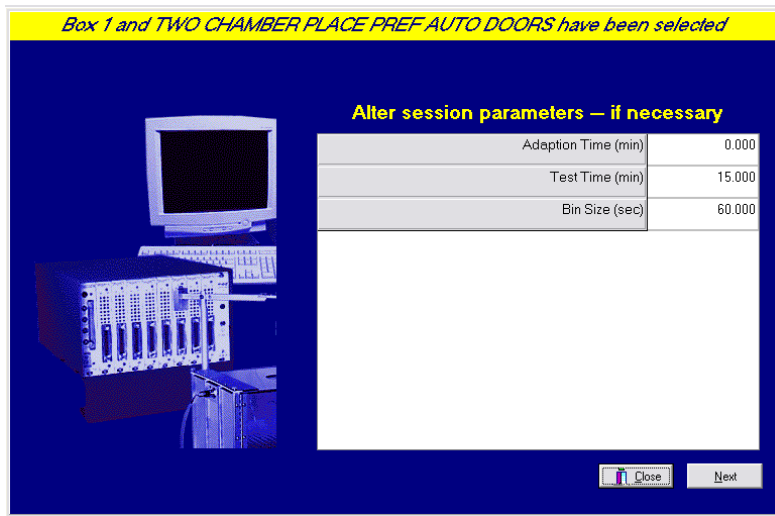
Filename: Two Chamber PP Subj1_Group1

Click "Next" to finish loading the box
or "Previous" to correct errors.

Close Previous Next

The Alter Session Parameters Screen, shown in Figure 4.7, is the next screen to appear, and is an important screen for the researcher. The Alter Session Parameters screen allows the researcher to alter the parameters by which a procedure executes. The Send Start Command Screen appears next. The options available on the screen vary depending upon how many boxes are described in the Hardware Configuration.

Figure 4.7 - Alter Session Parameters Screen



In this example only one box is described in the Hardware Configuration, so Figure 4.8 will appear next. If more than one box is in the Hardware Configuration, then Figure 4.9 will appear.

Figure 4.8 - Send Start Command Screen for Single Box Configuration

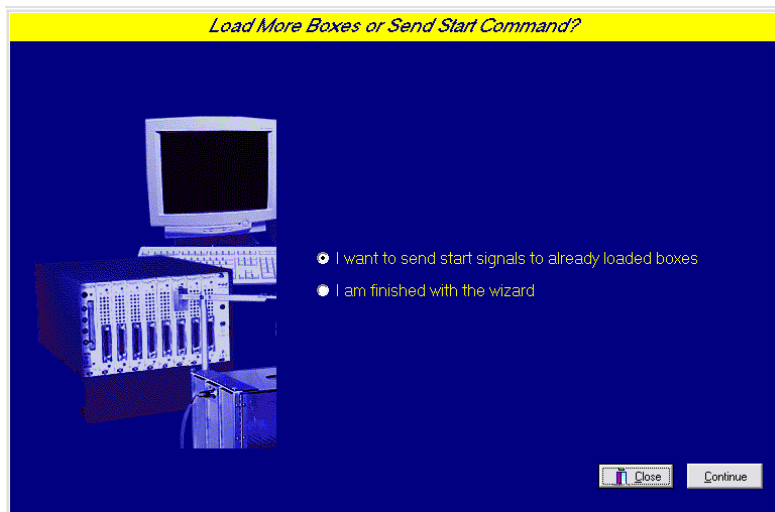
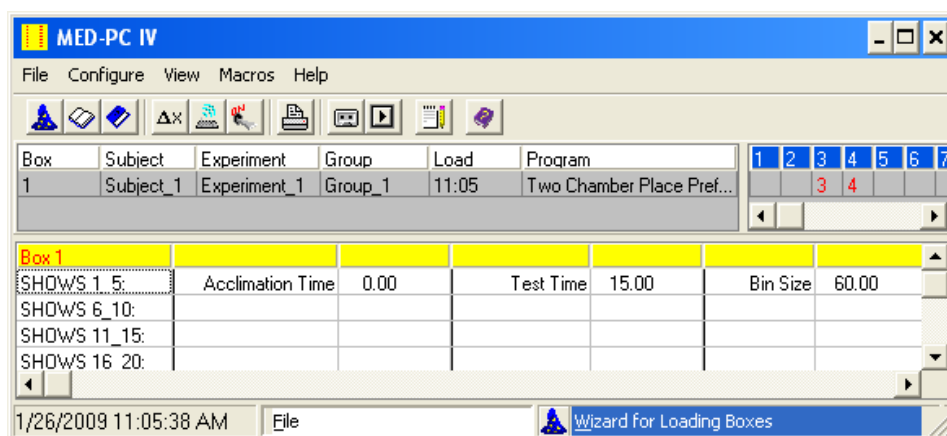


Figure 4.9 - Send Start Command Screen for Multiple Box Configuration



In both cases (Figure 4.8 and Figure 4.9), the screens are where the researcher decides to either load more boxes, send a start signal to boxes that are already loaded, or enter the MED-PC run-time environment without sending a start signal by selecting "I am finished with the wizard". This option results in the screen shown in Figure 4.10.

Figure 4.10 - The MED-PC Run-Time Screen



Viewing/Changing Variable Values

Before a “start command” has been issued, any variable may be changed on the MED-PC run-time screen. Simply highlight the value to change, and then enter the new value. Once a session is in progress, change variables by selecting **Configure | Change Variables**, or click the 4th tool bar item **ΔX**. In the lower left hand corner of the Change Variables window, find the “Display Data from Box” display, and choose the chamber(s) to modify. By clicking additional boxes in the “Additional Boxes to Update” section, changes made to a single box are automatically loaded to all of the selected boxes.

Figure 4.11 - Changing Variables Screen

Displaying Variables from Box 1

A Array	B Array	C: 0.000	D: 0.000	E: 0.000
F: 0.000	G: 0.000	H: 0.000	I: 5.000	J: 0.000
K: 0.000	L: 0.000	M: 0.000	N: 0.000	O: 0.000
P: 0.000	Q: 0.000	R: 0.000	S: 0.000	T: 0.000
U: 0.000	V: 0.000	W Array	X: 0.000	Y: 0.000
Z: 0.000				

Named Vars

Vars

Refresh

Issue

Close

Help

Display Data from Box

1

Additional Boxes to Update

☐

Select All Deselect All

C from Box 1

0.000

The value of any simple variable may be viewed from this screen by clicking an array on the table and each element in that array can be viewed, as shown in Figure 4.12. To change a value, simply highlight and replace the value in the lower right hand box or use the up/down arrows to increment by 1. Click the **Issue** button for the change to take effect. Click **Named Variables** to produce the display in Figure 4.13. Change variables here as needed.

Figure 4.12 - Displaying Array A from Box 1

Displaying Array A from Box 1

A(0) 0.000	A(1) 15.000	A(2) 60.000
---------------	----------------	----------------

Named Vars
Vars
Refresh
Issue
Close
Help

Display Data from Box
☒ 1

Additional Boxes to Update
☐ 1
Select All Deselect All

A(0) from Box 1
5.000

Figure 4.13 - Displaying Named Variables from Box 1

Displaying Named Variables from Box 1

Adaption Time (min)	0.000
Test Time (min)	15.000
Bin Size (sec)	60.000

Named Vars
Vars
Refresh
Issue
Close
Help

Display Data from Box
☒ 1

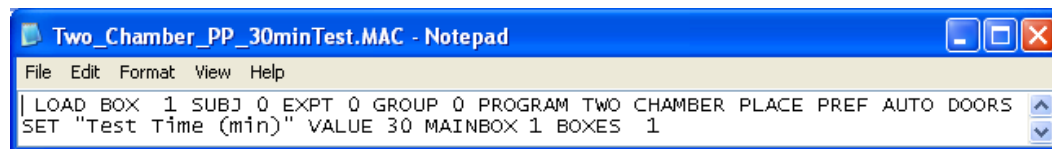
Additional Boxes to Update
☐ 1
Select All Deselect All

Macros

The simplest way to initially create a macro is to record keyboard functions while performing the steps manually. Once the commands are in the macro, it is easy to create a number of macros with the macro editor. The following example illustrates the process of loading "Box 1" and changing the Test Time to 30 minutes.

To begin, open MED-PC and going directly to the run time screen. Close the load wizard, if present. Before loading or opening the procedure, click **Macro** on the main menu and select **Turn On Macro Recorder** or click the 8th tool bar item with the cassette tape icon on top. A note on the bottom of the display indicates that the recorder is running. Open "Two Chamber Place Pref Auto Door.mpc" by clicking **Files | Open Session**. Change the variables using any of the methods described above. When all settings have been made, turn the recorder off again by using the main menu or tool bar. Save the macro with a distinctive name. The example in Figure 4.14 was named "Two_Chamber_PP_30minTest.mac" since the Test Time was changed to 30 minutes.

Figure 4.14 – Two_Chamber_PP_30minTest.mac

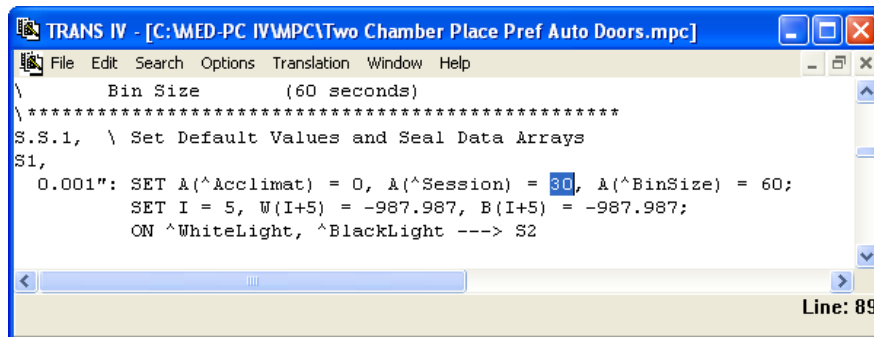


Once this macro is built, use the macro editor to make simple changes such as replacing reward or correct lever values. Review the Help file on screen or the **MED-PC User's Manual** for more information on macros and the features offered. A START command or message box followed by a START command could be added to the macro (it was left off here so changes could be verified before starting the procedure).

Modifying the MedState Notation™ Code

Permanent changes to the Two Chamber Place Preference procedures can be made to the MedState Notation code. To make the same change to the Test Time as shown above, do the following. Open Trans IV and select **File | Open** to place Two Chamber Place Pref Auto Door.mpc into the text editor. Scroll down to approximately line 89 (note the line counter in the lower right hand corner of the editor) to reveal the code shown in Figure 4.15.

Figure 4.15 – Two Chamber Place Pref Auto Door.mpc Line 89



The screenshot shows a text editor window titled "TRANS IV - [C:\MED-PC IV\MPCTwo Chamber Place Pref Auto Doors.mpc]". The menu bar includes File, Edit, Search, Options, Translation, Window, and Help. The code in the editor is as follows:

```
\      Bin Size      (60 seconds)
\ *****
\ S.S.1, \ Set Default Values and Seal Data Arrays
S1,
  0.001": SET A(^Acclimat) = 0, A(^Session) = 30, A(^BinSize) = 60;
        SET I = 5, W(I+5) = -987.987, B(I+5) = -987.987;
        ON ^WhiteLight, ^BlackLight ---> S2
```

The line counter in the bottom right corner indicates "Line: 89".

Change $A(^Session) = 15$ to $A(^Session) = 30$ and save the changes with the same or a new file name such as Two_Chamber_PP_30minTest.mpc. Remember, if creating a new .mpc file name and are using a macro to load boxes, the file name in the macro also must be changed. Translate and compile the new or changed file as described previously and run MED-PC. Use the "Change Variables" screen to view/confirm the new values.

CHAPTER 5

Understanding the Data Files

Data can be saved manually by selecting **FILE | SAVE DATA MANUALLY** or **FILE | SAVE DATA (FLUSH)**. The file name that is used to save the data in depends on the option that was chosen in the Hardware Configuration Utility and may also be dependent on the Subject, Experiment, and Group name provided in the MED-PC load wizard. Within each data file, the headings are created for each Subject, Experiment, Group, Box, etc., (see below). Data files may be opened with note pad, word pad, or any word processor or spreadsheet; however, be sure they are always saved “unformatted” in case a data extraction utility such as MED-PC to Excel might ever be used. Data file formats are explained in detail in the **MED-PC User’s Manual**.

Sample Data File

Select **Annotated** on the file options page during hardware installation to produce a raw data file similar to the following. Data files may be opened with note pad, word pad, or any word processor; however, be sure they are always saved unformatted in the occasion a data extraction utility such as MPC2XL is used. The header information should be self-explanatory. Data-file formats are explained in detail in the **MED-PC User’s Manual**.

Breakdown of Sample File - Simple Variables

The following simple variables are shown immediately following the header information:

File: C:\Program Files\MED Associates\MED-PC IV\DATA\!2008-08-22

Start Date: 08/22/08	Date that the program started
End Date: 08/22/08	Date that the program ended
Subject: Animal 1	Subject name
Experiment: Experiment 1	Experiment name
Group: Group 1	Group name
Box: 1	Box in MED-PC that the program ran
Start Time: 9:35:33	Time that the program started
End Time: 10:43:06	Time that the program ended
MSN: Two Chamber Place Pref Man Door	Name of the program that created this file
C: 1.00	Flag Animal in Maze when C = 1
D: 0.00	Not Used
E: 900.00	Elapsed Session Time in Seconds
F: 60.00	Elapsed Bin Time in Seconds
G: 2.00	Flag for which side the Animal is starting on
H: 0.00	Not Used
I: 75.00	Subscript for the Data Time Bins
J: 0.00	Not Used
K: 0.00	Not Used
L: 0.00	Not Used
M: 14.00	Movement Flag
N: 0.00	Not Used
O: 0.00	Not Used
P: 0.00	Not Used
Q: 14.00	Movement Flag
R: 0.00	Not Used
S: 0.00	Not Used

T:	0.00	Not Used
U:	0.00	Not Used
V:	0.00	Not Used
X:	0.00	Not Used
Y:	0.00	Not Used
Z:	0.00	Not Used

Array A

Array A contains the control variable values. The values are preset to default values in State Set 1, State 1. They are displayed as named variables and can be changed by any of the methods described previously. Once a session is started these values should not be changed to insure the integrity of the experiment.

	A(0)	A(1)	A(2)
Row Marker	Acclimation Time (min)	Test Time (min)	Bin Time (sec)
0:	0.00	15.00	60.00

Array B

Array B contains the data values for the Black Zone. The first five elements contain the total counts for the entire test (default 15 minutes) and the subsequent elements contain the data for each time bin (default 60 seconds).

	B(0)	B(1)	B(2)	B(3)	B(4)
Row Marker	Exploration Counts	Entrance Counts	Zone Time	Activity Counts	Movement Counts
0:	12.00	9.00	765.43	624.00	541.00
5:	3.00	3.00	34.48	52.00	51.00
10:	2.00	1.00	45.64	48.00	42.00
15:	1.00	1.00	47.88	51.00	48.00
20:	0.00	0.00	60.00	69.00	63.00
25:	0.00	0.00	60.00	41.00	35.00
30:	1.00	1.00	58.08	37.00	34.00
35:	0.00	0.00	43.71	49.00	40.00
40:	2.00	1.00	49.40	37.00	34.00
45:	0.00	0.00	60.00	41.00	40.00
50:	1.00	1.00	43.32	34.00	31.00
55:	0.00	0.00	60.00	23.00	16.00
60:	0.00	0.00	60.00	35.00	22.00
65:	0.00	0.00	53.09	37.00	31.00
70:	2.00	1.00	29.82	22.00	15.00
75:	0.00	0.00	60.01	48.00	39.00

Array W

Array W contains the data values for the White Zone. The first five elements contain the total counts for the entire test (default 15 minutes) and the subsequent elements contain the data for each time bin (default 60 seconds).

	B(0)	B(1)	B(2)	B(3)	B(4)
Row Marker	Exploration Counts	Entrance Counts	Zone Time	Activity Counts	Movement Counts
0:	12.00	8.00	134.57	160.00	130.00
5:	5.00	2.00	25.51	34.00	21.00
10:	1.00	1.00	14.36	18.00	15.00
15:	1.00	1.00	12.12	22.00	21.00
20:	0.00	0.00	0.00	0.00	0.00

CHAPTER 6

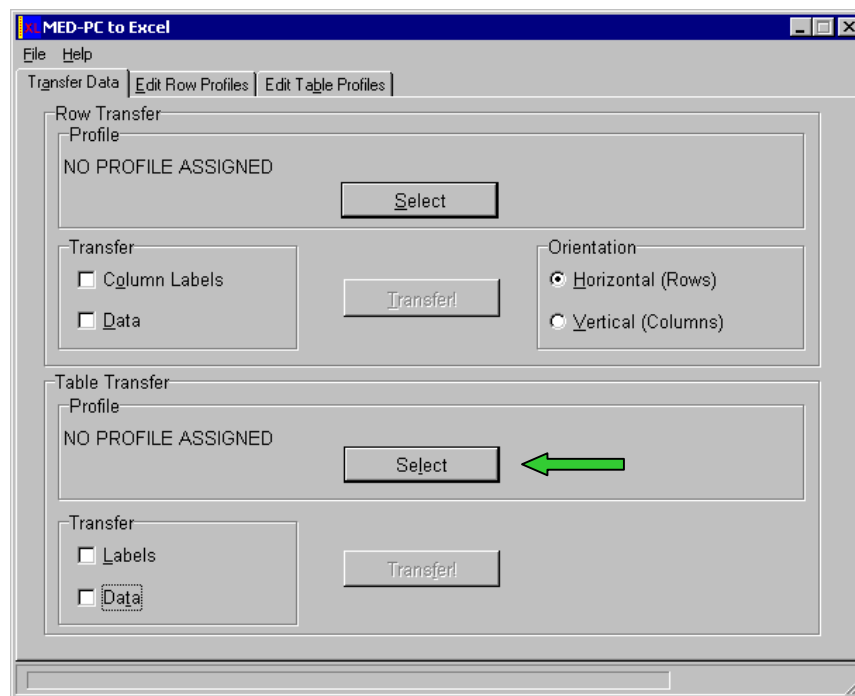
Data Analysis – Using MED-PC to Excel

Using a Pre-Formatted Table Profile (.MTP file)

MED-PC to Excel (MPC2XL) is a program that helps to import data from MED-PC (the raw-data file format, previous section) to a spreadsheet program such as Microsoft Excel. MPC2XL needs to be installed separately from MED-PC. Please refer to the “User’s Manual for MPC2XL” for installation instructions. Once MPC2XL is installed, open the folder that the program was saved to, and the .MTP files have been saved in a subfolder named “Data”. Follow the step-by-step instructions below for importing data.

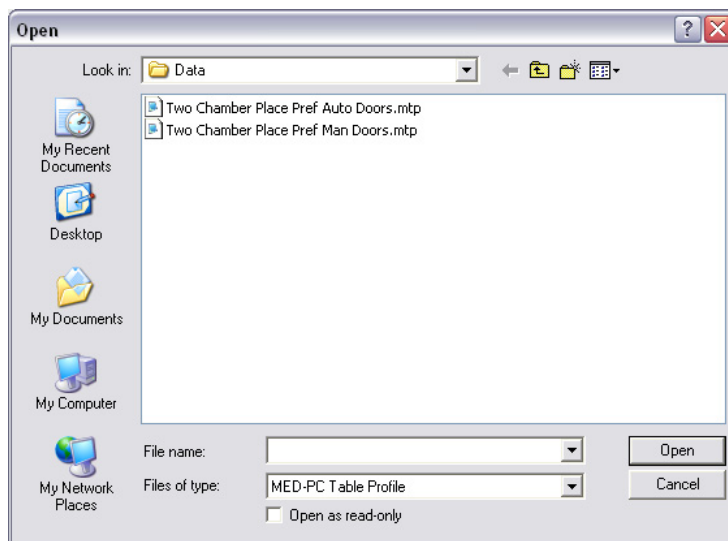
1. Open Microsoft Excel, and then minimize the window. Open **MED-PC to Excel** and the display shown in Figure 6.1 will appear. The uppermost file display should be titled **Transfer Data**. Under the **Table Transfer** window at the bottom of the screen, click on **Select**.

Figure 6.1 – Table Transfer



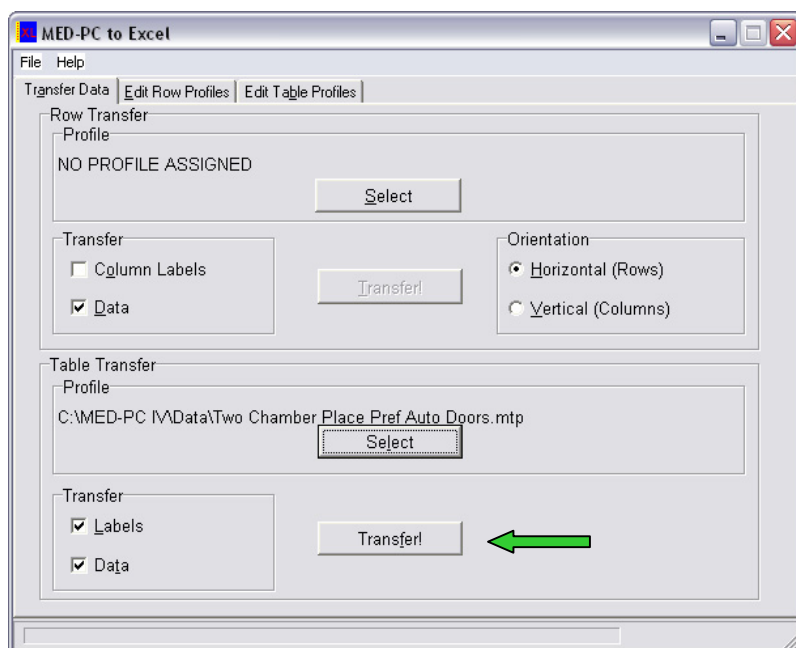
2. Choose the .MTP file in the Data subfolder that corresponds to the MED State Notation Procedure that was run and click **Open**. For this example Two Chamber Place Pref Auto Door.mtp will be used.

Figure 6.2 - Select File to Open



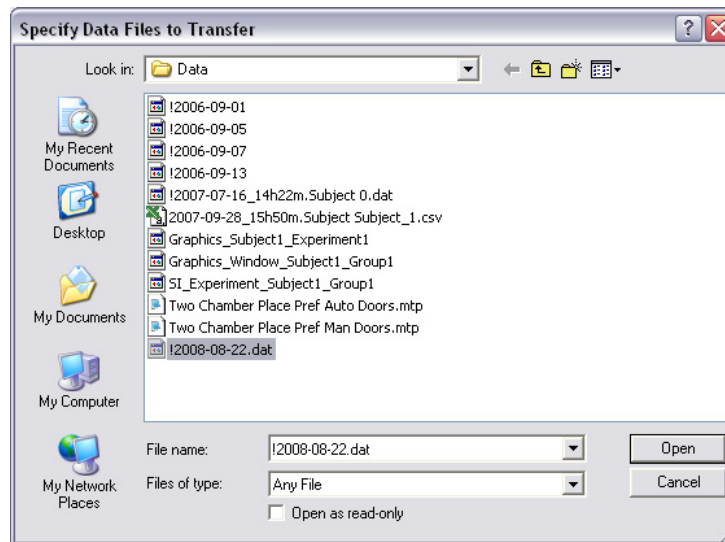
3. Note that .MTP file is listed under the Table Transfer "Profile." Select **Labels** and **Data**, because selecting these options will print data labels as well as import data. Click **Transfer!**

Figure 6.3 - Transfer Data



- Specify the raw data file to transfer. Raw data files are listed by date, and then click **Open**. This step performs the transfer, and now the data has been sent to Microsoft Excel.

Figure 6.4 - Specify Data Files to Transfer



- Maximize the Microsoft Excel screen, and the data should appear in the following format:

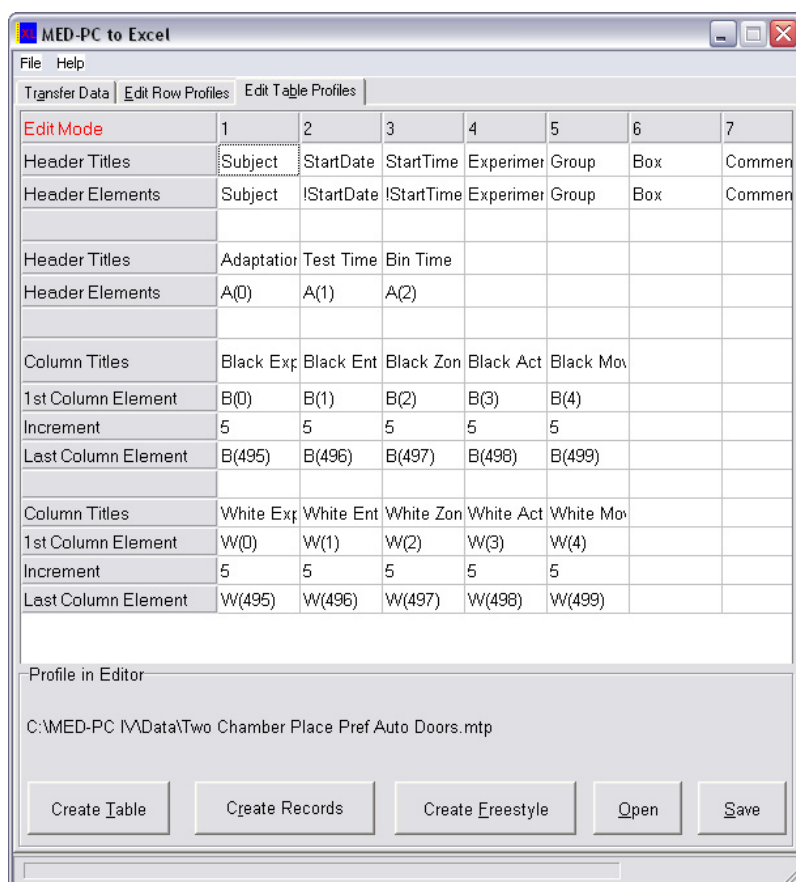
Figure 6.5 - Excel Spreadsheet

Microsoft Excel - Book1						
File Edit View Insert Format Tools Data Window Help						
A1 Subject						
A	B	C	D	E	F	G
1 Subject	StartDate	StartTime	Experiment	Group	Box	Comment
2 Animal 1	8/22/2008	9:35:33	Experiment 1	Group 1	1	
3						
4 Adaptation Time	Test Time	Bin Time				
5 0	15	60				
6						
7 Black Exploration Counts	Black Entrance Counts	Black Zone Time	Black Activity Counts	Black Movement Counts		
8 12	9	765.43	624	541		
9 3	3	34.48	52	51		
10 2	1	45.64	48	42		
11 1	1	47.88	51	48		
12 0	0	60	69	63		
13 0	0	60	41	35		
14 1	1	58.08	37	34		
15 0	0	43.71	49	40		
16 2	1	49.4	37	34		
17 0	0	60	41	40		
18 1	1	43.32	34	31		
19 0	0	60	23	16		
20 0	0	60	35	22		
21 0	0	53.09	37	31		
22 2	1	29.82	22	15		
23 0	0	60.01	48	39		
24						
25 White Exploration Counts	White Entrance Counts	White Zone Time	White Activity Counts	White Movement Counts		
26 12	8	134.57	160	130		
27 5	2	25.51	34	21		
28 1	1	14.36	18	15		
29 1	1	12.12	22	21		

Editing the .MTP file

The .MTP file can be edited to customize the transfer process and display the data of most interest. See the “User’s Manual for MPC2XL” for explicit instructions about how to modify the MTP file using the “Edit Table Profiles” screen, see Figure 6.6. “Header Titles” are user defined, and can include any information that will help label the data listed below the title. “Header Elements” are the data points that will get transferred from the raw data file into Excel. The raw data file will list the elements that can be included in the .MTP file (e.g. A-Z).

Figure 6.6 - Edit Table Profiles



To edit either the Header Titles or Header Elements, click on the appropriate cell in the Edit Table Profiles window. Rows and columns can be added to the file. First, select the desired location, then right-click to add either the desired row or column. Use the right-click option titled **Paste an Identifier** to include subject or session identifying information. Note that when using the Paste an Identifier function, Header Titles and Header Elements are edited and pasted automatically.

To save the edited .MTP file, select **Save** and create a new filename in the Data subfolder. To use this newly edited and saved .MTP file, verify that the file is selected in the **Table Transfer Profile** display (Figure 6.3), and then click **Transfer**.